

SGG400T120UC2

IGBT Modules

Characteristics

T_c = 25°C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{GE} = V _{CE} , I _c = 15.2mA	5.3	5.8	6.3	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CE(s)} ; T _j = 25°C			5.0	mA
V _{CE(TO)}	T _j = 25°C		0.8	0.9	V
r _{CE}	V _{GE} = 15V, T _j = 25(150)°C		2.50(3.75)	2.88(4.00)	mΩ
V _{CE(sat)}	I _c = 400A; V _{GE} = 15V; chip level		1.80	2.05	V
C _{ies}	under following conditions		24.6		nF
C _{oes}	V _{GE} = 0, V _{CE} = 25V, f = 1MHz		1.62		
C _{res}			1.38		
L _{CE}			15		nH
R _{CC'+EE'}	res., terminal-chip T _c = 25(125)°C		0.25(0.55)		mΩ
t _{d(on)}	under following conditions: V _{CC} = 600V, I _c = 400A		220		ns
t _r	R _{Gon} = R _{Goff} = 1 Ω, T _j = 150°C		49		ns
t _{d(off)}	V _{GE} = ± 15V		505		ns
t _f			78		ns
E _{on} (E _{off})			33(42)		mJ
Inverse Diode under following conditions:					
V _F = V _{EC}	I _F = 400A; V _{GE} = 0V; T _j = 25°C		2.20	2.52	V
V _(FO)	T _j = 25(150)°C		1.3(0.9)	1.5(1.1)	V
r _F	T _j = 25(150)°C		2.3(3.1)	2.5(3.4)	mΩ
I _{RRM}	I _F = 400A; T _j = 150°C		450		A
Q _{rr}	di/dt = 8800A/us		68		uC
E _{rr}	V _{GE} = 15V		30		mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.072	K/W
R _{th(j-c)D}	per Inverse Diode			0.14	K/W
R _{th(c-s)}	per module			0.038	K/W
Mechanical Data					
M _s	to heatsink M6	3		5	Nm
M _t	to terminals M6	2.5		5	Nm
Weight	typical			325	g



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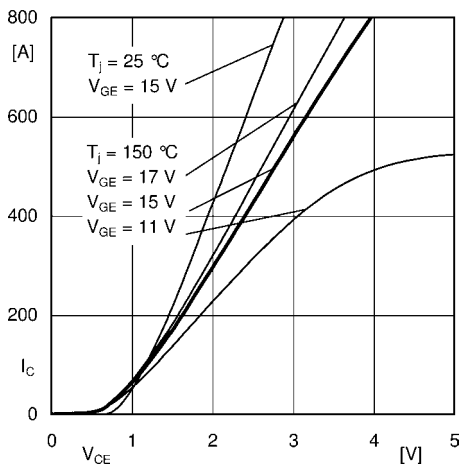


Fig. 1: Typ. output characteristic, inclusive $R_{CC'+EE'}$

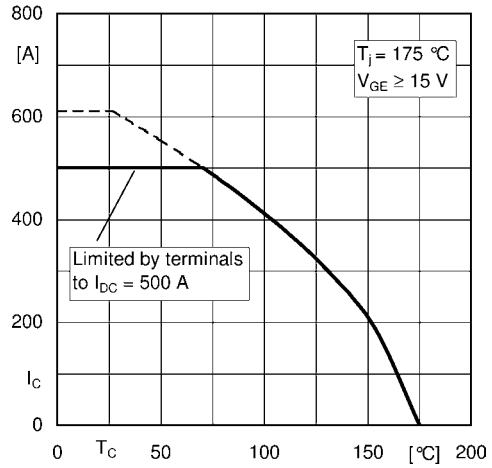


Fig. 2: Rated current vs. temperature $I_c = f(T_c)$

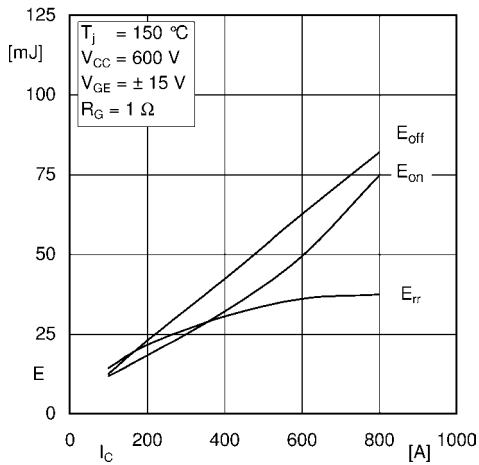


Fig. 3: Typ. turn-on /-off energy = $f(I_c)$

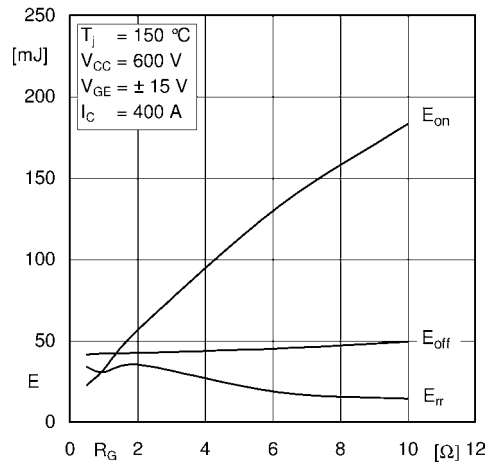


Fig. 4: Typ. turn-on /-off energy = $f(R_G)$

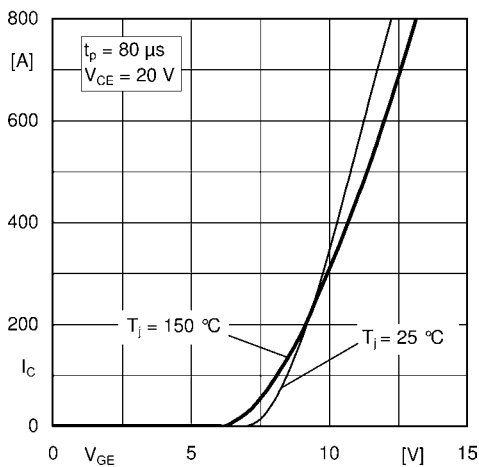


Fig. 5: Typ. transfer characteristic

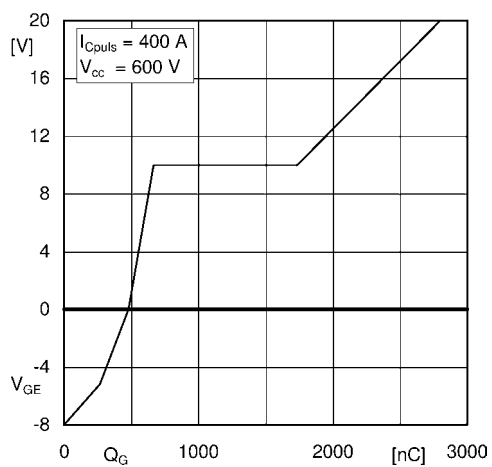


Fig. 6: Typ. gate charge characteristic



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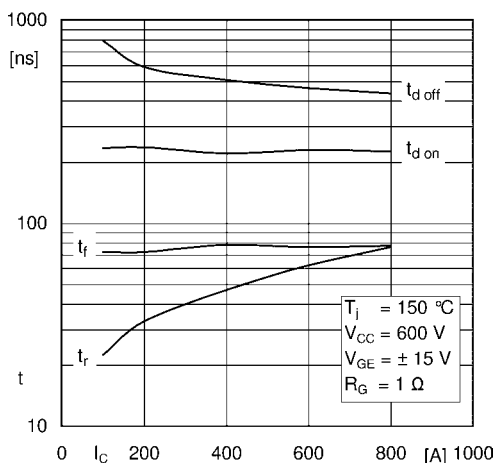


Fig. 7: Typ. switching times vs. I_C

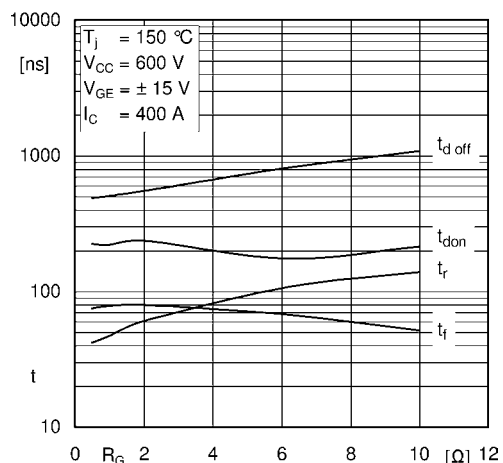


Fig. 8: Typ. switching times vs. gate resistor R_G

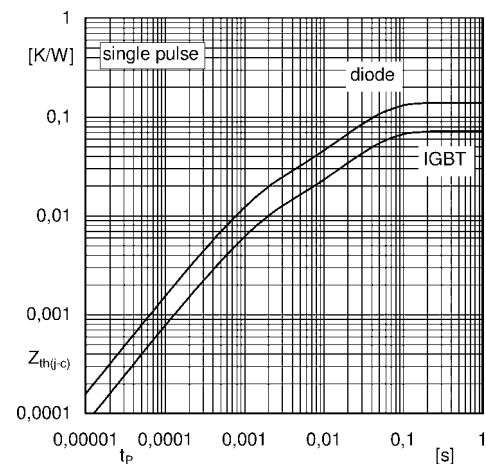


Fig. 9: Transient thermal impedance

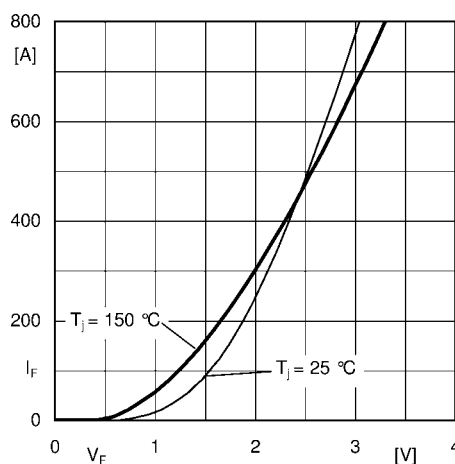


Fig. 10: Typ. FRD diode forward charact., incl. $R_{CC}+EE'$

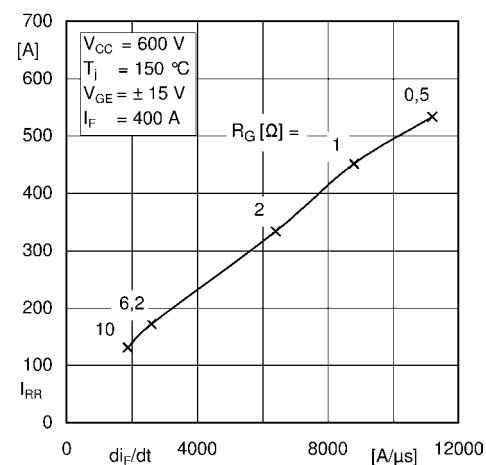


Fig. 11: FRD diode peak reverse recovery current

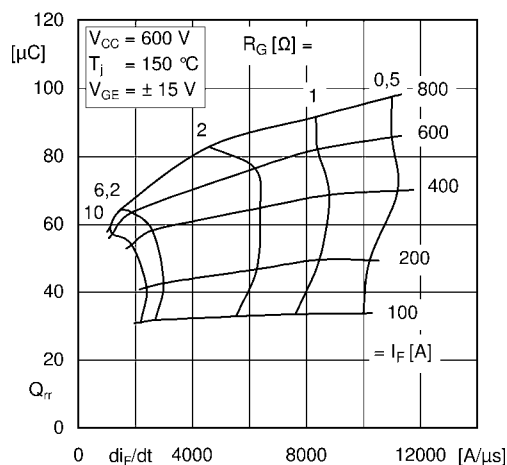


Fig. 12: Typ. FRD diode peak reverse recovery charge

